

***Interactive comment on* “Hydrological and Runoff Formation Processes Based on Isotope Tracing During Ablation Period in the Third Polar Region” by Zong-Jie Li et al.**

Anonymous Referee #2

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The paper of Li et al. "Hydrological and Runoff Formation Processes Based on Isotope Tracing During Ablation Period in the Third Polar Region" investigates the hydrological and runoff formation processes of river water in the source regions of the Yangtze river during different ablation episodes in 2016 and the ablation period from 2016 to 2018. In particular, the authors discuss the temporal and spatial variations of isotopes in different tributary rivers under the background of climate warming and their influencing factors by using the methods of field observation, experimental testing, stable isotope tracing, and analytical modeling of end-element mixed runoff. In general, I like the idea of understanding the hydrological and runoff formation processes of river water during different ablation period. Also, I think that the data obtained with this study have high

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potential interest for the scientific community. Therefore it is worth publishing this article in HESS after revising the following minor revisions. 1. In the abstract precise in the method used. 2. The aim of the study should be exhibited in the introduction section. 3. Line 59-61. "The runoff system in the source area of the Yangtze River consists of alpine glaciers, snow, frozen soil, and liquid precipitation. ". Delete this 4. Line 64-68. "Therefore, studying changes in the composition of runoff and its hydrological effect in cold areas can not only consolidate theories on runoff research, prediction, and adaptation, but also have important practical significance for construction, industry, and agriculture in cold regions" - please rephrase it. 5. Line 109-110. The ground temperature of the permafrost increases, causing it to melt significantly. - rewrite this statement 6. Line 227. EMMA is a section name - required full name not abbreviation. 7. Please change "final ablation" into "end ablation", and change "total ablation" into "ablation". 8. Line 274-276. Sentence is badly written, please rephrase. 9. Line 349. " However, all regions exhibited high ablation, especially in the Tanggula Mountains," please rephrase. 10. The conclusion section is too long, please rewrite. 11. Fig. 8. Small plot inside is unreadable.

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